Water Rights Query Web Site

An on-line, interactive resource tool and an answer to the question:

"Where on Earth is My Water Right?"

Sponsored by:
Montana Department of Natural Resources and Conservation

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Montana State Library, NRIS, Water Information System

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Development Partner:
Upper Clark Fork River Basin Steering Committee

Contents

Introduction:

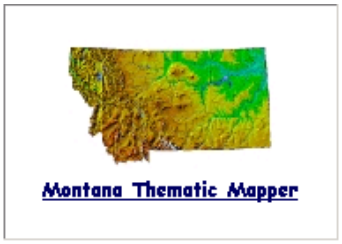
The Montana Department of Natural Resources and Conservation (DNRC) and the Natural Resource Information System (NRIS) of the Montana State Library are pleased to present the *"Montana Water Rights"* web-site." This *World Wide Web* tool provides on-line access to water right records managed by the Montana Department of Natural Resources and Conservation.

The Upper Clark Fork River Basin Steering Committee, through their requests for resource data and funding played an important role in stimulating the development of the *Montana Water Rights* site. This and other data provided through the mapper were important data features for their *Upper Clark Fork Water Quantity / Quality Project* funded by EPA.

The Montana Water Rights website is a tangible product having statewide utility and long-term value. As the Upper Clark Fork project matured a decision was made to develop this tool, not just for the Upper Clark Fork river basin, but also for the entire state. DNRC and NRIS have jointly developed the water rights web site and are expected to maintain its long-term viability.

Water Right Websites:

Water Rights data are accessible via two different Internet applications:– The *NRIS Montana Thematic Mapper* and *Montana DNRC Water Right Query System*. Both of these applications are available from the NRIS *Interactive Application* page which can be found at http://nris.state.mt.us/interactive.html.



The NRIS *Thematic Mapper* is best suited to find water rights within a defined geographic area or extent. For example, you can use the Thematic Mapper to find water right information in a particular township, range, and section, within a certain buffer distance of a stream, or within a basin, or county. Once the geographic criteria are entered, the *mapper* provides not only water rights data but a variety of other data themes as well. Users can view a map or report of the data, and download ESRI format shapefiles for the particular theme.

Accessing water rights via *Montana DNRC Water Right Query System* is best suited when you wish to query attribute information in the water rights database. For example, use this option to search for water rights by owner name, use type, or priority date. You can also combine attributes in this query system, for example, find all water rights in Lewis & Clark County, with a priority date between 1/1/1999 and 12/31/1999, that are domestic use, groundwater rights.

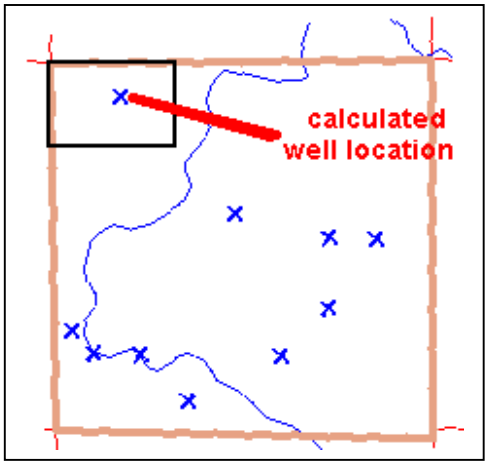
Keeping Data Current:

When using this data set, it is important to remember that the system currently does not access data in a real-time format. Real time access to DNRC's statewide water rights data set may be a future development. At this point, the web site is supported by a "time stamped" data set. This data is extracted from DNRC's database and "translated" into *ARC INFO* files. Water right data is periodically updated at two-week intervals. Activities in the real world occurring just after the update, such as the creation of a new water right or water right ownership changes, are not reflected in the web site data. DNRC's internal database is updated daily. If you require real time data you should contact your local DNRC Water Resources Office.

Additionally, water rights have many status flags, such as active, terminated, cancelled, expired, no status, pending, revoked, withdrawn, dismissed. The water right web application this manual references is ONLY serving "active" water rights, as these are the water rights that are in current use. If the user requires other information, please contact the local DNRC Water Resources Office.

Water Rights & GIS:

The representation of water rights as a GIS product makes it important to note that the points displayed are "mathematically" derived. DNRC does not currently maintain a data set that stores either GPS or digitized data. Land descriptions are all held in a tabular form and stored as various quarter or half descriptions within a section, township and range format. For irrigated areas, DNRC's data set also maintains an "acres irrigated" data field. This area feature is stored for each individual parcel and as a sum for all parcels related to a single water right.



Therefore, a conversion program using the tabular data calculates GIS point data for all points of diversion, reservoir locations, and all places of use. This program can only calculate the approximate location of the described feature. For example, if a stock water well is located in land description described as the NE1/4 NW1/4 NW1/4, Section 1, Township 6 North, Range 21 West, Montana Principle Meridian, the computer calculates a location for that well that is displayed as a point in the middle of those legal land descriptions. Reservoir locations, points of use, points of diversions, and well locations are all similarly calculated.

It is possible for data to overlap. Since points are mathematically derived multiple points are displayed in a common location. This overlap commonly occurs in heavily developed areas. Therefore a single "X" representing a well location, may actually represent the location of

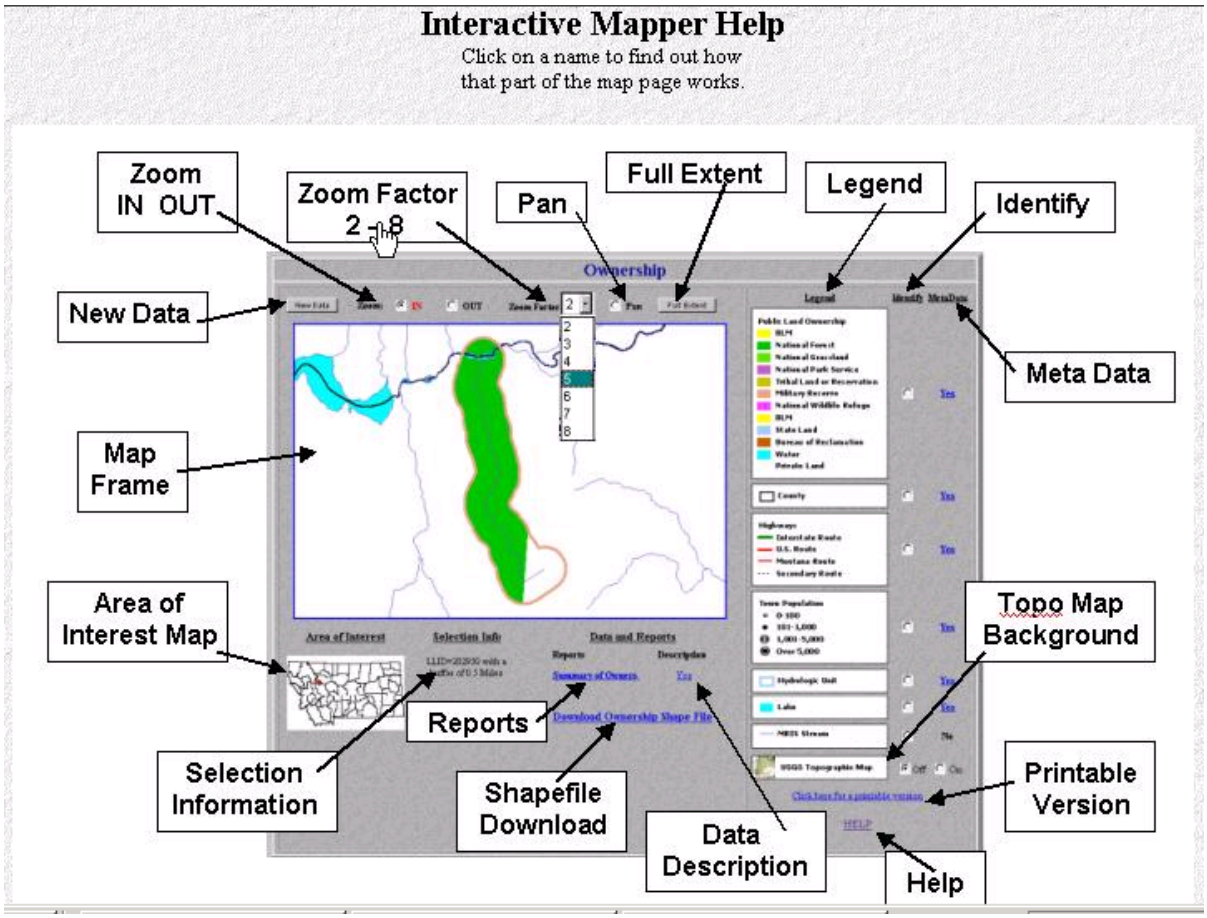
multiple water rights and wells. Identify tools, described later, allow you to identify this over-lap.

DNRC is beginning to evaluate and develop digitized points and field boundaries. When that is accomplished it should be possible to display that feature though the *Thematic Mapper*. However such capabilities are many years away, especially as a statewide coverage.

Mapping Tools:

The *Montana DNRC Water Rights* page is capable of providing a number of products. Perhaps the most exciting tool is the mapping tool and its map products. *Montana DNRC Water Rights* interfaces with the NRIS Thematic Mapper (This tool allows the users to select a data set and display it against a simplified geographic coverage of streams, highways and towns, USGS digital topographic maps or, where available, digital orthophotos (a form of aerial photo.)

Features of this mapping tool are described in a "help menu" linked to the interactive mapper. Primary map features are described on the help site and are also displayed in the figure below. Each of the identified features are "hyper links", "hot keys" that provide further description of that web page attribute.



(url = http://nris.state.mt.us/mapper/MapperHelp/mapimageguide.html)

In addition to the map reports, this tool can deliver

- Exportable shape files of map points of diversion or places of use,
- Water right indexes in several formats
  (both hard copy or as exportable data files for spreadsheet data file),
- Individual water right abstracts, and
- An analysis of water right development over time.

The two Internet applications that provide access to water rights data are given a more detailed examination in the following pages. Again, these are the "*Montana DNRC Water Rights*" and the "NRIS *Thematic Mapper*". Both of these applications can be found on the *NRIS Interactive Applications* web site. *Montana DNRC Water Rights* is best suited for looking at individual or groups of water rights by a defined water right attribute – owner, stream, county or basin. The *Thematic Mapper* allows the retrieval of water rights by using a spatial or geographic search criteria like watershed, stream, basin, township & range, etc.

Montana DNRC Water Rights

Selecting the *Montana DNRC Water Rights* hyper link logo will bring the user to the *Water Right Query System* page. Note the "date stamp" link near the top of the page identifying the time of the current data transfer. Clicking this link accesses help pages for water rights terminology. We have also included the same help file at the end of this document (page 22).

The query system allows you several methods through to define a query. It is not necessary for all of these fields to be defined or selected. You can select a single feature, such as owner name, to conduct a search. If the name is unique the results may be very satisfactory. However, using a very common name, Smith for example, is likely to identify a long list of water rights.

You can also conduct a search by county, basin, stream (any stream in DNRC's data set), owner name or some combination of these query features. You are advised to narrow your search using one or more "Area" features whenever possible. The data set being accessed is very large and a more defined search will be more efficient.

Refine Your Search Options: The Water Right Search is an excellent search option for an individual water right number. Note the example given just above the window for input of

the water right number. Once a number is typed in, the 'WRType" dropdown is available for searching for a specific type of water right.

Pull down menus on the lower half of the query screen provide options for several unique searches. You can design a query using those features defined in the "Water Source / Use" menu or the "Priority Date Range Search".

Two of these menus, Source and Use include additional pull down menus. These can be very helpful when defining or narrowing data output. Examples of each are described below.

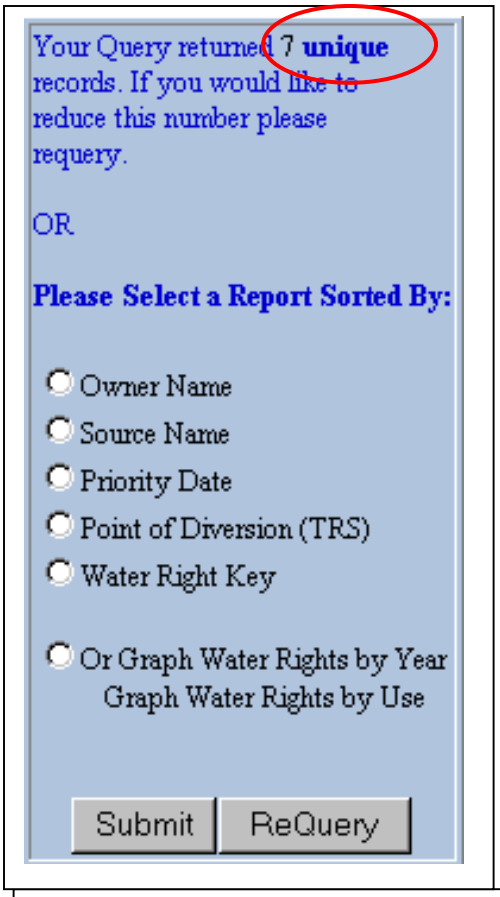
The "**Water Source**" pull down menu allows limiting the search to those water rights, which DNRC defines, as many kinds of ground water or surface water diversions. Not making a selection will capture all surface and groundwater sources.

The "**Select Use**" menu allows the users to very narrowly define their search by given uses of water. Making no selection will provide an all-inclusive query – i.e. all uses of water are gathered. However, it is possible to limit the search to one use by selecting only commercial or domestic, for example. Recall that a help screen is available through the time stamp link. When questions on defined uses arise, users may wish to consult with the local DNRC office.

The "**Priority Date Range Search**" is for those users who wish to conduct a query that identifies water rights either senior or junior in priority – newer or older -- this query allows that analysis. Montana State water law is based upon the Prior Appropriation Doctrine. In fact, Montana's sole ranking of one water right against another is established by the water right's date of first development and use – i.e. its priority date.

Entering a date only in the "begin" field will access only those water rights developed "after" the entered date. Using only the "end" field will display all water rights with a priority date prior to and therefore senior to the selected date. Entering a date in both fields will access all water rights developed and having a priority date within the selected range. This search feature will allow water commissioners and others who need to know the relative ranking – or priority of water rights – to quickly access those selected uses.

Once the parameters of the query have been identified, the query system begins a data search. These data searches may require the sorting of a very large data set and may take some time. A warning or notice window will appear and announce to the user this time requirement and, when necessary, inform user if search was unsuccessful.

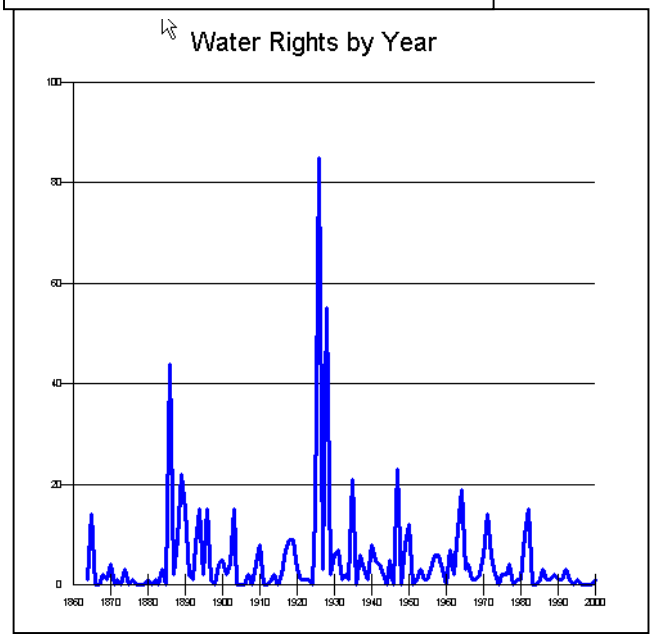


Query Results & Reports appear in a new view screen when a search is completed. The number of unique water right records found is noted in the top paragraph. If none are found the user must reconfigure their query.

After the query of data is completed you then select a report format. Once selected you "submits" the format request to proceed. If selections are not satisfactory you can also request a "requery'.

You are provided several output options. Report formats fall into two categories, an index or a graph. Five index formats are currently available but only one graph option.

The graph report option produces two side-by-side graphs. A line graph, as displayed to the right, and a pie chart, as displayed below. The line graph has years plotted on the x-axis and number of water rights plotted on the y-axis.



*The five **index report formats** (Owner Name, Source Name, Priority Date, Point of Diversion and Water Right Key) contain identical information but the presentation order is different. These reports are essentially indexes of water right information. It is possible for a single water right to be displayed multiple times* in these report formats.

* a note about multiple listings: the number of unique water rights is given at the top of a returned query, but the reports will return every combination of owner name, multiple uses (purposes), locations of use, as well as locations of diversion(s), thus multiple records for a given water right number.

The **Owner Report** sorts queried water rights by owners last name in ascending order (a – z). A given water right will be displayed more than once if there are multiple owners of the right.

Source Name sorts queried water rights by the stream name as identified in DNRC's data set. This index has it's greatest utility when water rights are queried by some geographic area – basin, county or watershed.

The **Priority Date** report sorts data by date of first use (priority) in ascending order (oldest to newest). This report is very valuable for users who are attempting to rank one water right against another.

To create a **Point of Diversion Index** the township, range and section land description associated with each diversion (head gate, pump sites etc.) location are examined and sorted. The report displays the records first by the township and then within each unique township and range area by section. Water rights commonly have multiple diversions and might have a reservoir linked to its operation. Therefore, it is very likely that a single water rights often appear numerous times in this report format.

The **Water Right Key** report sorts water rights by the unique water right number assigned by DNRC. Although water right numbers are unique, your initial query search the water right data and select that data by another descriptive feature. So, even in this format, a single water right may be displayed multiple times.

Index format is displayed below. This is the result of a "Point of Diversion" report for a sort conducted for an owner name. The index generated by this query is one page long with listing the water right records. Please remember that these files can get quite large, depending on the query.

DNRC WATER RIGHTS SORTED BY WATER RIGHT KEY

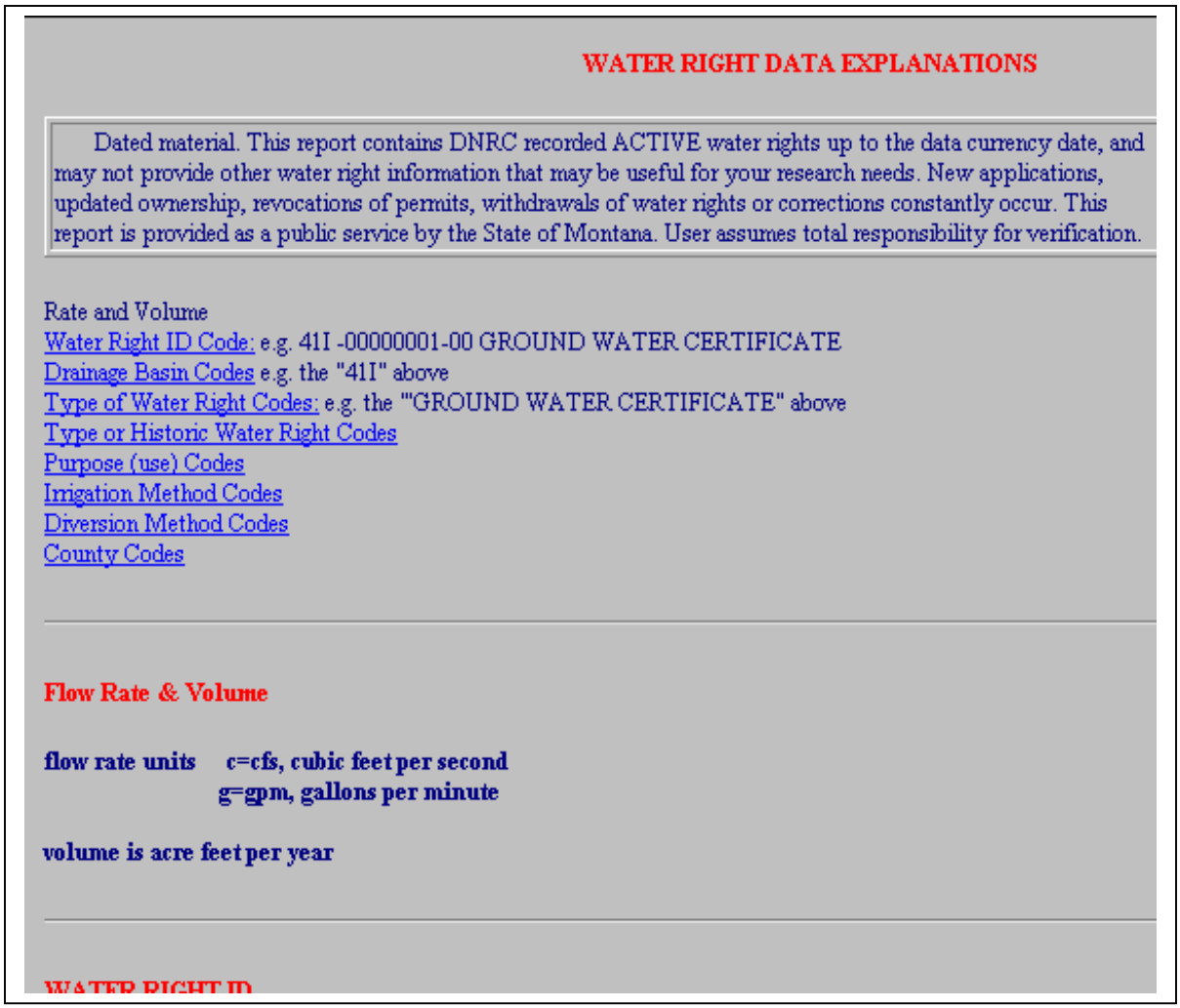
Data Current as of November 18, 2002

Page 1 of 1

New Sort Order | Download file | DNRC Home

	Number of selected records = 12									Number of pages selected = 1							
WATER RIGHT	VBRID	WRTYPE	PRIORITY DATE	POINT OF DIVERSION TR,SEC,QS AND GOVT. LOT			PURPOSE	SOURCE NAME	OWNER	RESERVOIR	RATE	UNITS	VOLUME	INTERACTIVE MAPS		
41B 62165 00	1	GROUND WATER CERTIFICATE	February 11, 1986	7S9W	28	SENW	DOMESTIC	GROUNDWATER	MCLANE, JR RALPH L	N	25	GPM	1.5	Pts of Div	Pts of Use	NA
41K 130067 00	1	STATEMENT OF CLAIM	June 1, 1935	21N2W	3	E2NW	STOCK	UNNAMED TRIBUTARY OF CASCADE COULEE	MCLANE EDWARD P	N				Pts of Div	Pts of Use	NA
41K 130067 00	1	STATEMENT OF CLAIM	June 1, 1935	21N2W	3	E2NW	STOCK	UNNAMED TRIBUTARY OF CASCADE COULEE	MCLANE HELEN L	N				Pts of Div	Pts of Use	NA
41K 130068 00	1	STATEMENT OF CLAIM	June 19, 1931	22N2W	34	SESESW	DOMESTIC	GROUNDWATER	MCLANE EDWARD P	N	20	GPM	5	Pts of Div	Pts of Use	NA
41K 130068 00	1	STATEMENT OF CLAIM	June 19, 1931	22N2W	34	SESESW	DOMESTIC	GROUNDWATER	MCLANE HELEN L	N	20	GPM	5	Pts of Div	Pts of Use	NA
76G 44482 00	1	GROUND WATER CERTIFICATE	April 29, 1982	4N10W	15	NWNWNW	DOMESTIC	GROUNDWATER	MCLANE LARRY A	N	9	GPM	1.05	Pts of Div	Pts of Use	NA
76G 44482 00	1	GROUND WATER CERTIFICATE	April 29, 1982	4N10W	15	NWNWNW	LAWN AND GARDEN	GROUNDWATER	MCLANE LARRY A	N	9	GPM	1.05	Pts of Div	Pts of Use	NA

Index Reports – Features and Functions:
The index report, illustrated on the previous page, has several "hyper-linked" headings. These headings are terms or features that have specific definitions to DNRC. If a user clicks one of these hyper-linked headings they will be connected to a definitions and help screen maintained by DNRC. These connections will help you learn definitions and details that define a feature. For example, if we examine the "water right" hyper link, the selected reference provides a detailed definition of DNRC's water right number and its components. When necessary, additional links are provided to further define a feature or "term of art" as used in this data set. See Appendix for complete list of following figure:


WATER RIGHT DATA EXPLANATIONS

Dated material. This report contains DNRC recorded ACTIVE water rights up to the data currency date, and may not provide other water right information that may be useful for your research needs. New applications, updated ownership, revocations of permits, withdrawals of water rights or corrections constantly occur. This report is provided as a public service by the State of Montana. User assumes total responsibility for verification.

Rate and Volume
Water Right ID Code: e.g. 41I -00000001-00 GROUND WATER CERTIFICATE
Drainage Basin Codes e.g. the "41I" above
Type of Water Right Codes: e.g. the "'GROUND WATER CERTIFICATE" above
Type or Historic Water Right Codes
Purpose (use) Codes
Irrigation Method Codes
Diversion Method Codes
County Codes

Flow Rate & Volume

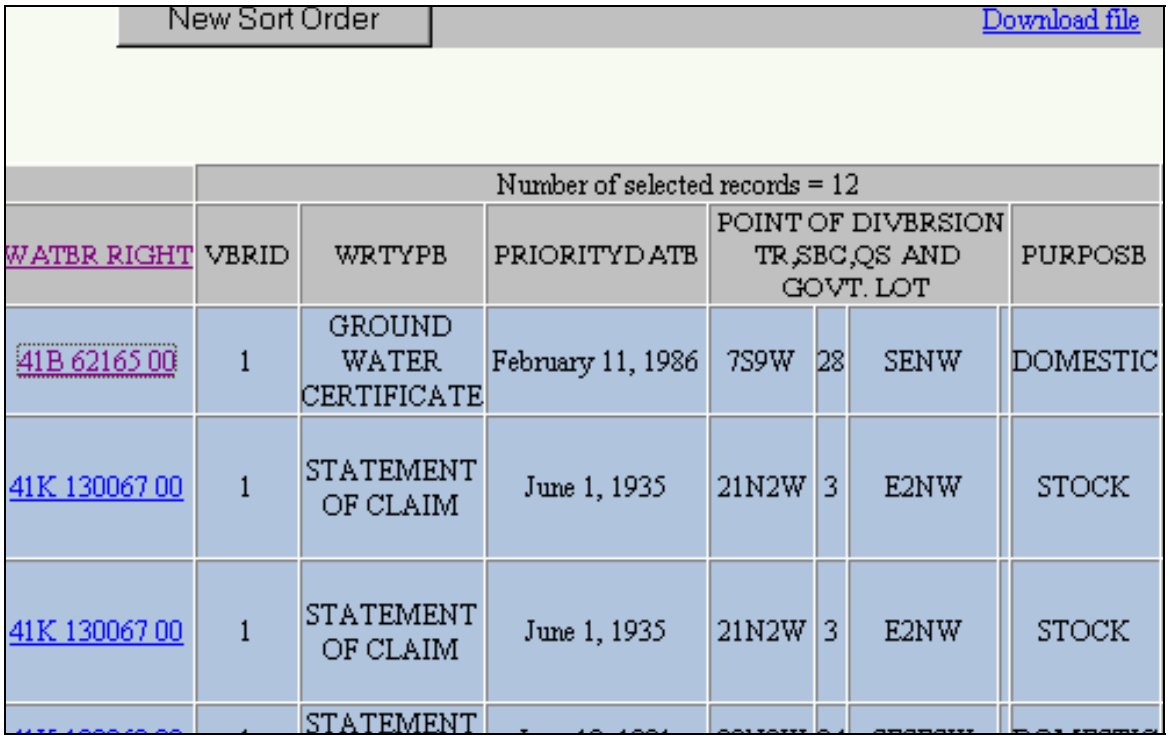
flow rate units c=cfs, cubic feet per second
g=gpm, gallons per minute

volume is acre feet per year

WATER RIGHT ID

You will notice there is a link option on the title section of these tabular results that states "**Download file**." This option enables the user to download the entire query result (though this can be too large a file to download, depending upon your query). Please read any help documents included in the download option. Within the downloaded table, a field (columns) labeled 'WRID' is a number that refers to the information about one particular water right. This link will be useful if the shapefiles are also downloaded, as there may be a need to link the shapefile to the tabular data to query more information out of the water rights data.

On the left side of this index report, and under the column heading of water rights, you will see a list of "water right" numbers. These are unique numbers DNRC has assigned to a given water right. The report formats for many queries will display the water right a numbers of times and therefore the numbers may repeat. In others, the number will only be displayed once. The number is also hyper linked. When you click on this feature a water right abstract for that unique water right is also displayed.


New Sort Order

Download file

Number of selected records = 12

WATER RIGHT	VBRID	WRTYPE	PRIORITYDATE	POINT OF DIVERSION TR,SEC,QS AND GOVT. LOT			PURPOSE
41B 62165 00	1	GROUND WATER CERTIFICATE	February 11, 1986	7S9W	28	SENW	DOMESTIC
41K 130067 00	1	STATEMENT OF CLAIM	June 1, 1935	21N2W	3	E2NW	STOCK
41K 130067 00	1	STATEMENT OF CLAIM	June 1, 1935	21N2W	3	E2NW	STOCK
		STATEMENT					

A simple sample water right abstract format is displayed below. Currently this abstract does not include place of use data. Also some of the data, diversion number for example, remain in "code". There are terms of art as well – rate, units and volume – which are defined in the help screen described above.

1/3/2003
41B 62165 00

STATE OF MONTANA
DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION

48 NORTH LAST CHANCE GULCH P.O. BOX 201601 HELENA, MONTANA 59620-1601

GENERAL ABSTRACT

Water Right Number: 41B 62165 00 GROUND WATER CERTIFICATE
Version: 1
Status: Active
Priority Date: February 11, 1986
Type of Historical Right:
Max Flow Rate: 25 GPM
Max Volume: 1.5
Max Acres:
Owners:
MCLANE, JR RALPH L
2000 DOWNING LANE
DILLON MT, 59725

Sources:

ID	Source Name	Res	Source Type	Means of Div	TR	Sec	QS	GovtLot	County
1	GROUNDWATER	N	WELL	WELL	7S9W	28	SENW		BEAVERHEAD

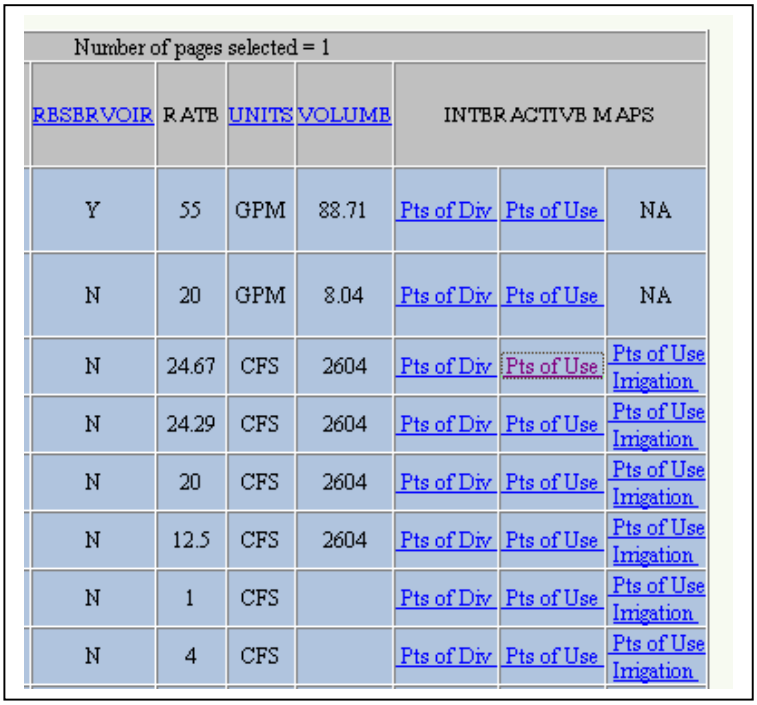
Uses:

ID	Purpose	ClimArea	VolAmt	Acreage	TR	Sec	QS	GovtLot	County
1	DOMESTIC		1.5		7S9W	28	SENW		BEAVERHEAD

The sample abstract shown above is for a small, clearly described water right using a spring. Users will find that many water right abstracts are much more complex. Multiple owners may be described as well as multiple uses. It is also very common for a single water right to have multiple diversions and types of diversion. You should remember that displayed information represents an abstract of the water right file. Original files – hard copies and microfilm – held in DNRC's record systems would give a more complete picture of the water right.

Data report columns on the far right of the index fall under the column heading of "INTERACTIVE MAPS". There will be two or three options displayed:

a) point of diversion ("Pts of Div"),
b) point of use ("Pts. Of Use").
c) irrigation use points ("Pts. of Use Irrigation").



Number of pages selected = 1

RESERVOIR	RATE	UNITS	VOLUME	INTERACTIVE MAPS		
Y	55	GPM	88.71	Pts of Div	Pts of Use	NA
N	20	GPM	8.04	Pts of Div	Pts of Use	NA
N	24.67	CFS	2604	Pts of Div	Pts of Use	Pts of Use Irrigation
N	24.29	CFS	2604	Pts of Div	Pts of Use	Pts of Use Irrigation
N	20	CFS	2604	Pts of Div	Pts of Use	Pts of Use Irrigation
N	12.5	CFS	2604	Pts of Div	Pts of Use	Pts of Use Irrigation
N	1	CFS		Pts of Div	Pts of Use	Pts of Use Irrigation
N	4	CFS		Pts of Div	Pts of Use	Pts of Use Irrigation

These hyper linked headings will generate the creation of a map displaying the described feature (For example, a map of the place of use for the identified water right.) As described earlier in this report, points displayed in the mapping tool are calculated and approximate locations. These are based upon the tabular township, range and section data from DNRC's database. Points of diversion represent water diversion facilities – i.e. a head gate, pump site, wellhead, a water gap or some other feature that diverts water for use. Points of use are again approximate "centriod" locations of the place(s) where the water right is used. As we stated above, single water right is likely to have multiple points of diversion and places of use.

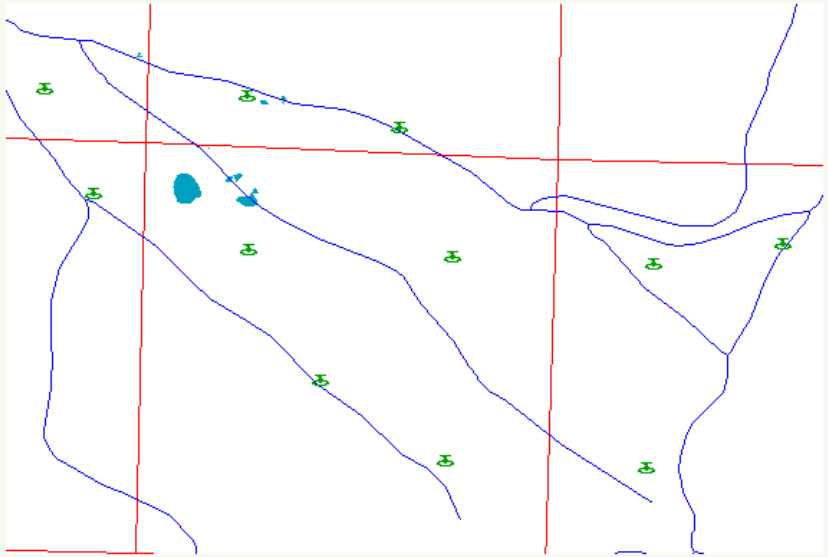
These Interactive Map links connect to NRIS's "Thematic Mapper" tool. Therefore, activating any of these links will create and display a simplified map of the described water right feature. The Thematic Mapper also provides you the option of using alternate backdrops, either topographic maps or air photos (Digital Orthophoto Quadrangles). The digital topographic coverage is available statewide. Digital orthophoto quads are now available for much of the state. When using these as the "backdrop" it is important for the user to select a geographic display area of less than 5 square miles. If an orthophoto is not available or if the area selected is geographically too large the default display will be the topographic map.

These base maps will have the identified point and simplified geographic features as the "back drop". The next 3 figures, on page 14 and 15, display versions of the water right, WRID 305637, version 1. The first is a simplified map of "Water Right Points of Use" mapped over the simplified backdrop (pg. 14). This map displays major roads, a simplified hydrography, cities and towns when applicable and, of course, the selected feature – in this case points of use. The next maps are the same data, but with the topographic and orthophoto backdrops (pg. 15). The report links at the bottom of the map will be specific to the particular water right number illustrated.

Water Rights - Points of Use

Selection Info: WRID='305637' and verid='1'

Back To Data List | Zoom IN OUT | Zoom Factor 2 | Pan | Full Extent



Area of Interest

Data Reports	Description
Owner Name	Click Here
Source Name	Click Here
Priority Date	Click Here
Point of Diversion Location (TRS)	Click Here
Water Right Key	Click Here

Download Water Rights Points of Use Shape File

Identify	Legend	MetaData
○	Water Rights, Purpose: Irrigation, Stock, Domestic, Lawn and Garden, Municipal, Other	No
○	Stream	No
○	Water Body	No
○	Water Body	No
○	Highways: Interstate Route, U.S. Route, Montana Route, Secondary Route	Yes
○	Town Population: 0-100, 101-1,000, 1,001-5,000, Over 5,000	Yes
○	Public Land Survey Section	No

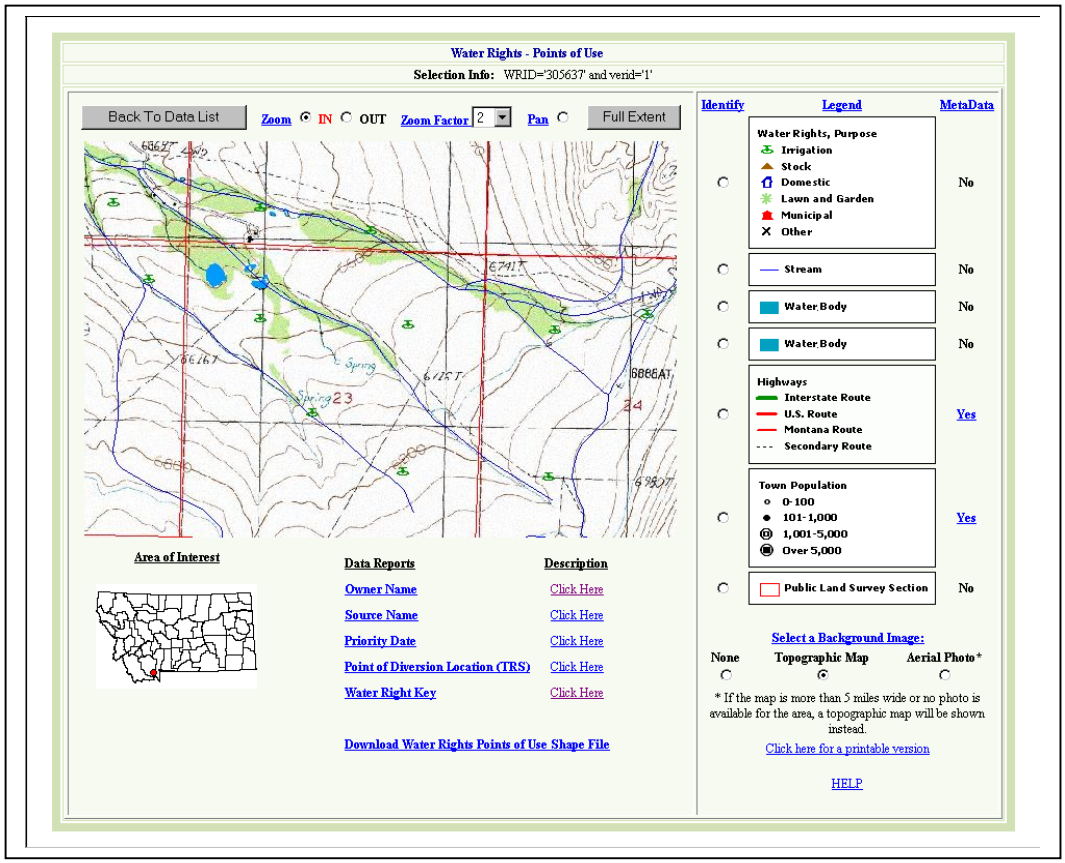
Select a Background Image:

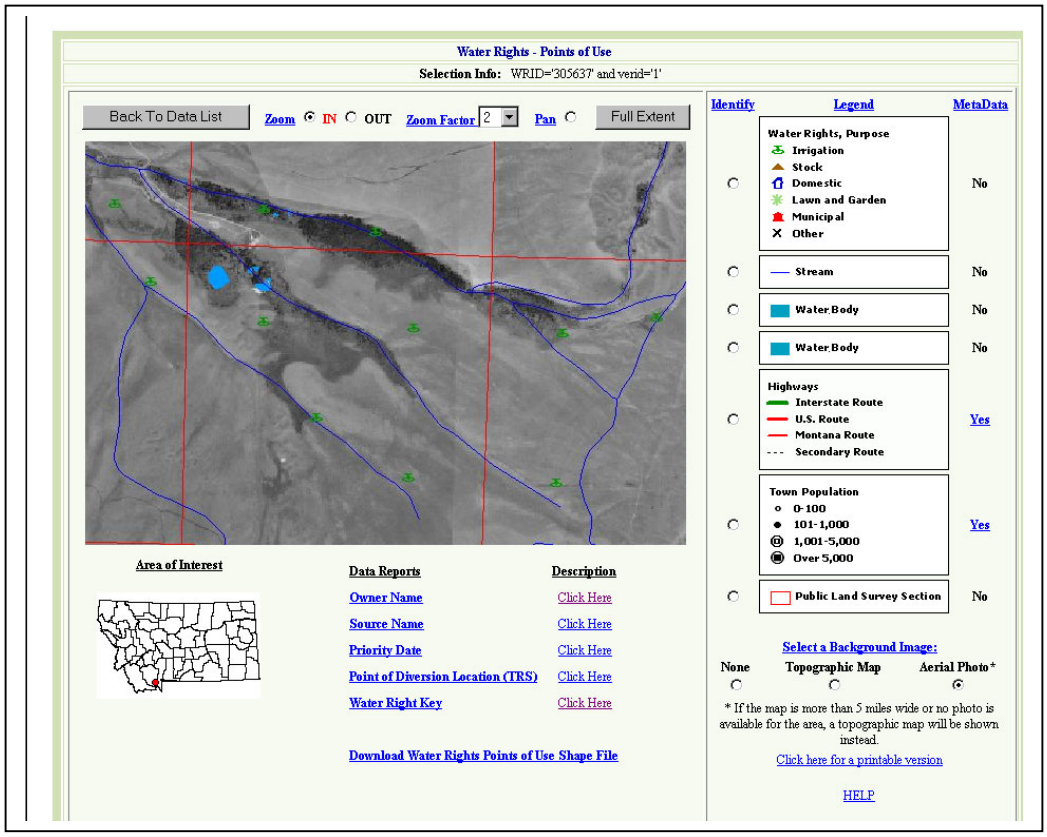
None	Topographic Map	Aerial Photo*
◉	○	○

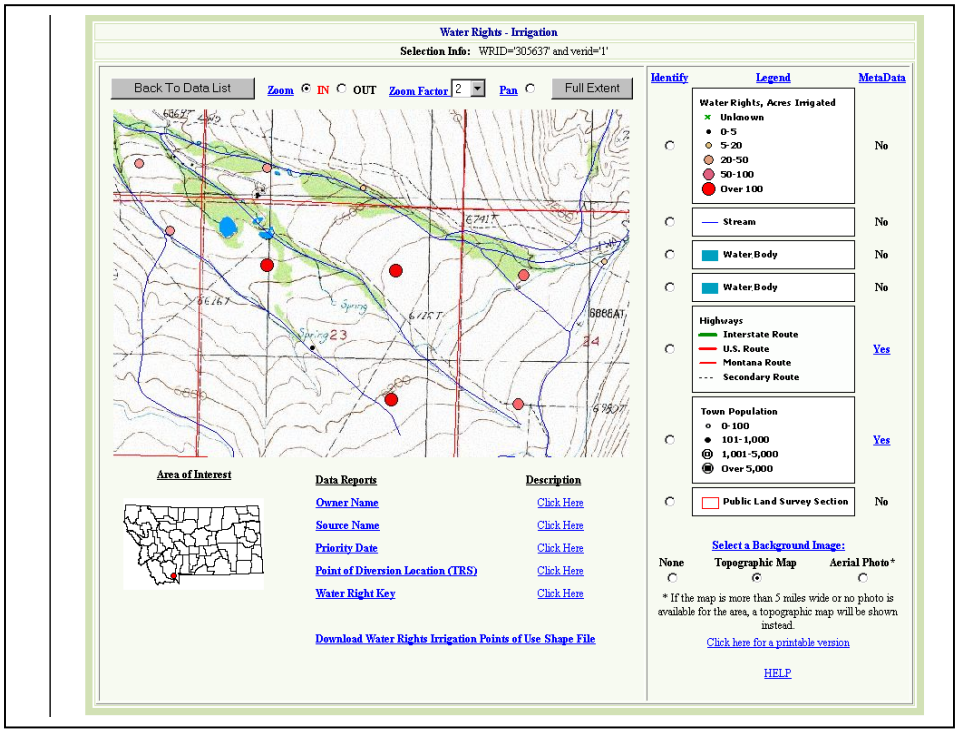
* If the map is more than 5 miles wide or no photo is available for the area, a topographic map will be shown instead.

Click here for a printable version

HELP


Water Rights - Points of Use
Selection Info: WRID='305637' and verid='1'
Back To Data List
Zoom IN OUT
Zoom Factor 2
Pan
Full Extent
Identify
Legend
MetaData
Water Rights, Purpose
Irrigation
Stock
Domestic
Lawn and Garden
Municipal
Other
No
Stream
No
Water Body
No
Water Body
No
Highways
Interstate Route
U.S. Route
Montana Route
Secondary Route
Yes
Town Population
0-100
101-1,000
1,001-5,000
Over 5,000
Yes
Public Land Survey Section
No
Area of Interest
Data Reports
Description
Owner Name
Click Here
Source Name
Click Here
Priority Date
Click Here
Point of Diversion Location (TRS)
Click Here
Water Right Key
Click Here
Download Water Rights Points of Use Shape File
Select a Background Image:
None
Topographic Map
Aerial Photo*
* If the map is more than 5 miles wide or no photo is available for the area, a topographic map will be shown instead.
Click here for a printable version
HELP


Water Rights - Points of Use
Selection Info: WRID='305637' and verid='1'
Back To Data List
Zoom IN OUT
Zoom Factor 2
Pan
Full Extent
Identify
Legend
MetaData
Water Rights, Purpose
Irrigation
Stock
Domestic
Lawn and Garden
Municipal
Other
No
Stream
No
Water Body
No
Water Body
No
Highways
Interstate Route
U.S. Route
Montana Route
Secondary Route
Yes
Town Population
0-100
101-1,000
1,001-5,000
Over 5,000
Yes
Public Land Survey Section
No
Area of Interest
Data Reports
Description
Owner Name
Click Here
Source Name
Click Here
Priority Date
Click Here
Point of Diversion Location (TRS)
Click Here
Water Right Key
Click Here
Download Water Rights Points of Use Shape File
Select a Background Image:
None
Topographic Map
Aerial Photo*
* If the map is more than 5 miles wide or no photo is available for the area, a topographic map will be shown instead.
Click here for a printable version
HELP



Note in the map displayed above, we have used "Water Rights-Irrigation" for the example. Incorporated into the points is a sized point, based upon the irrigated acreage. The legend will indicate the range of irrigated acres represented by each point. Additionally, note that on the bottom of the page, there is the opportunity to **download** the shapefile for the selected water rights. The attribute table of information included in the shapefile set will vary, depending upon which type of data is requested, diversions or use, for example.

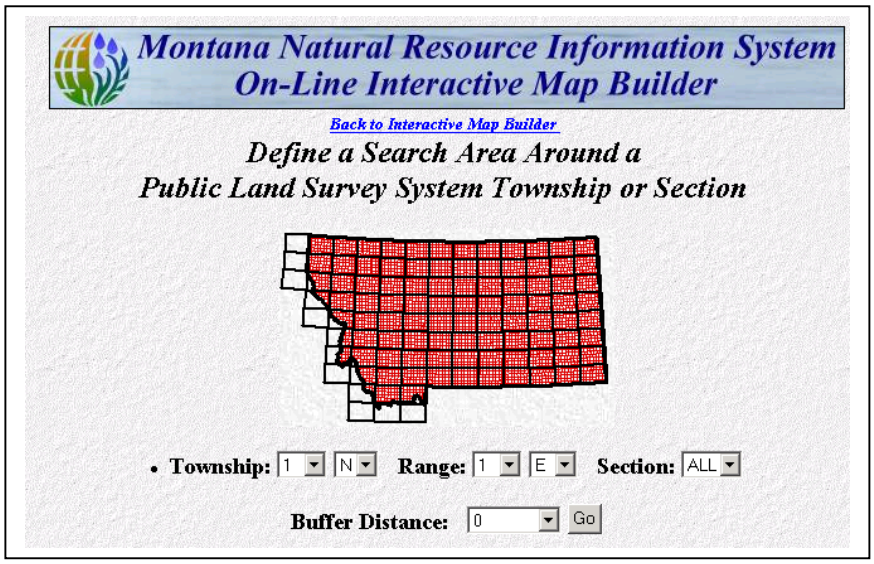
Montana Thematic Mapper:

Thematic Mapper allows you to display a number of data sets, including Montana water rights, geographically. You can learn a great deal about a geographic setting be it a stream, watershed, town, or county through this tool.

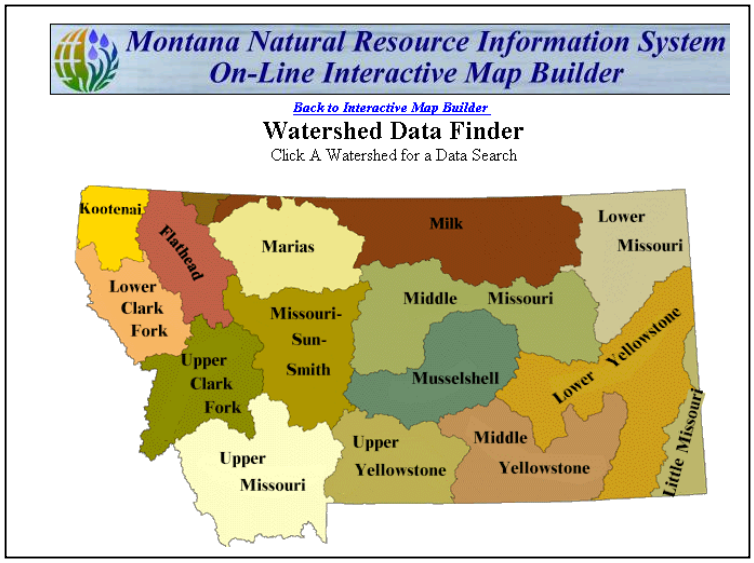
Thematic Mapper is best used for a geographic area analysis. Like the Montana DNRC Water Rights Query tool it provides maps, indexes and in some cases reports that would be of value in area wide planning.

You begin your analysis by selecting a geographic theme. This is done by first selecting the type of geographic feature to be examined. Nine different options are provided to define a general geographic setting (County, Highways, Streams, Towns, Township & Range, Watersheds, Watershed Groups, TMDL Planning Areas and Custom Study Areas). Six data specific geographic settings are also provided. These typically related to a single data set, such as Hunting Districts.

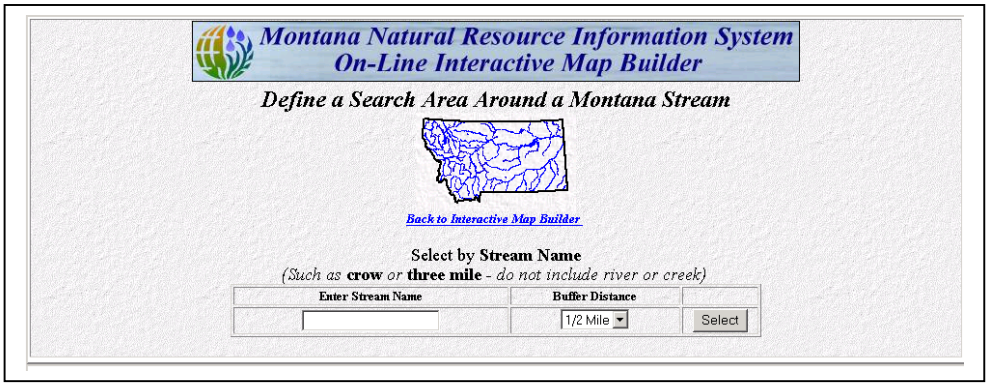
Typically you first select a geographic topic such as a "Township and Range". Your are then directed to a more specific window where you are asked to further define that setting. Continuing the "Township and Range" example, you are now taken to a page like that shown below where you are provided more specific locational references.



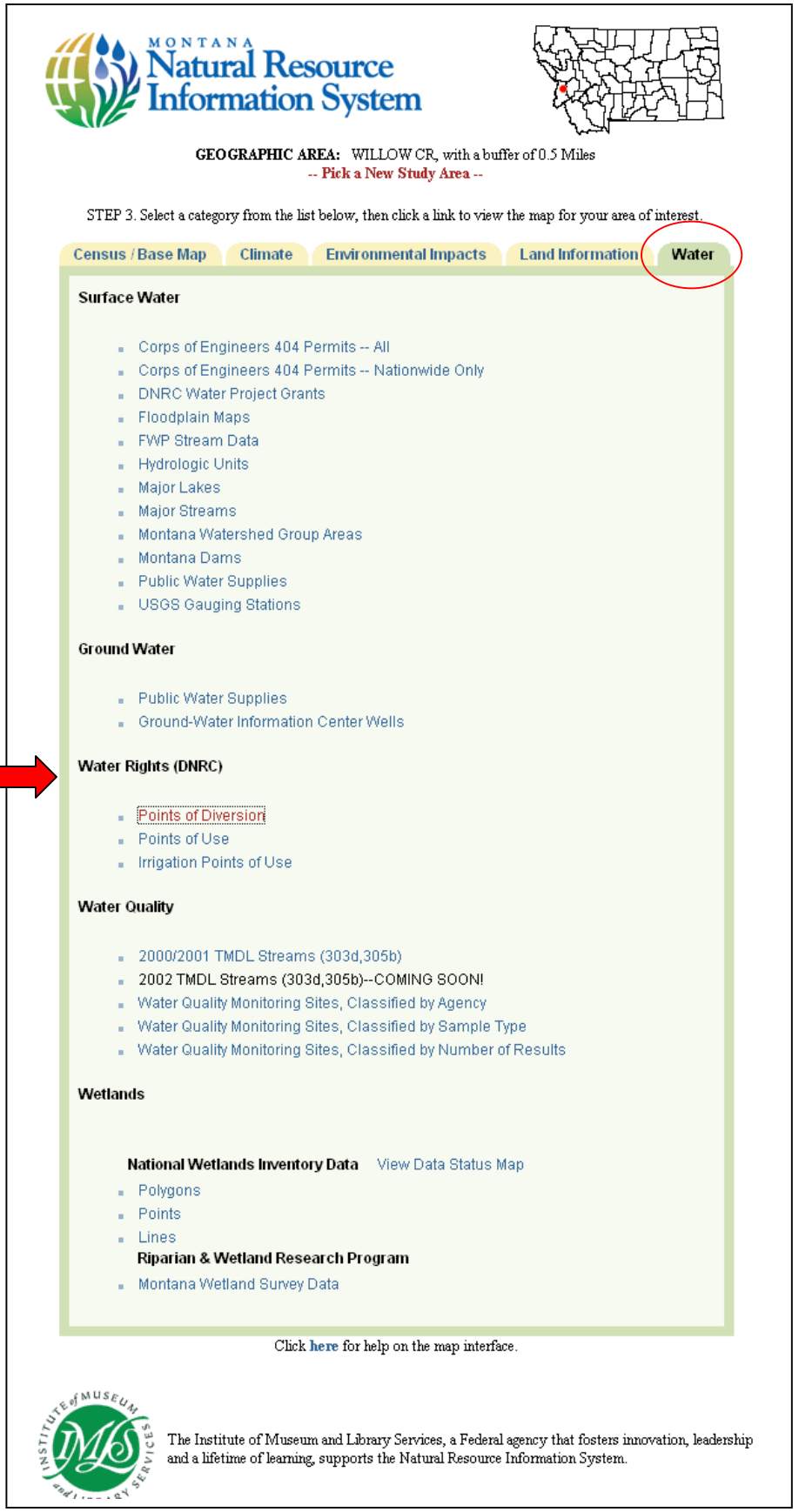
Township & Range Query In this instance the user would select the township, the range and a given section or the entire township.



Watershed Query the user can click on a geographic area and make a more specific watershed selection.



Steams allow the user to search on a streamname, and apply a equadistant buffer to each side of the stream.

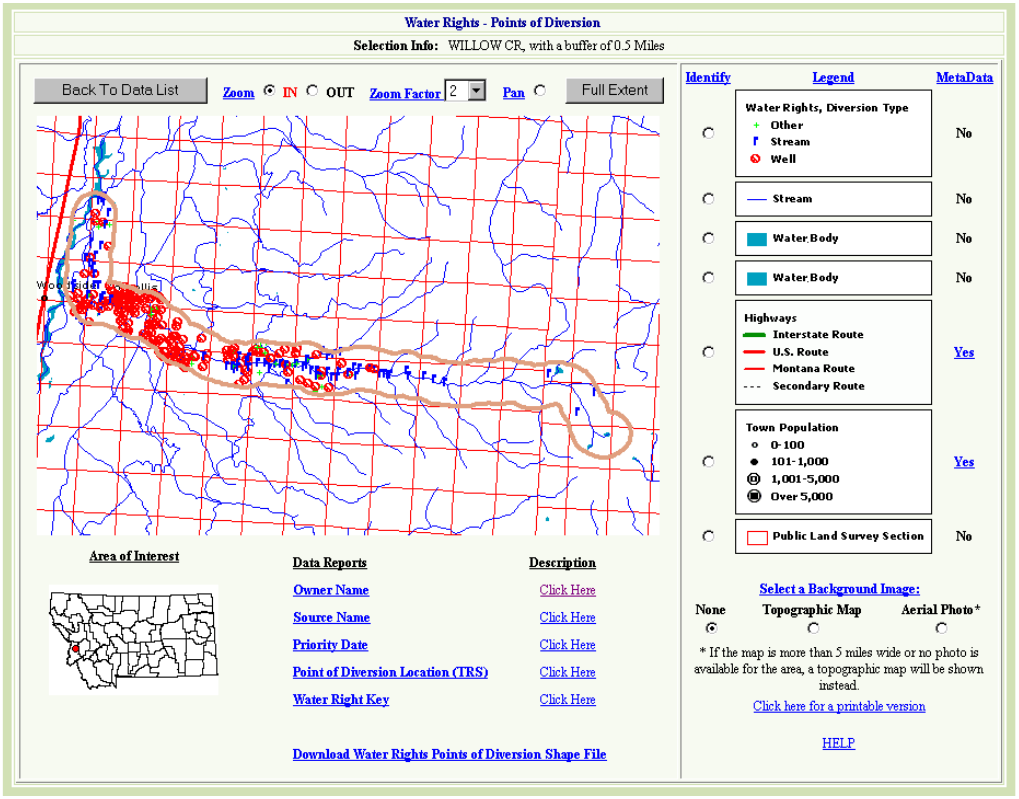


Data Themes You now select a data set to examine after defining the geographic setting. An increasing number of data sets are now available through this Montana State Library tool. Water Rights is a recent data set addition and are displayed in the lower left side of the screen.

You can search the data set and ask for a display of diversion points, reservoirs, diversion points for wells (ground water well and springs), points of use and irrigation use polygons. The entire Department of Natural Resources and Conservation's water rights database is accessible through this system.

Once you select a data set for analysis the web site mapping tool then delivers a "map" similar to those generated through the *Montana Water Rights Query* application. You first deliverable product with the *Thematic Mapper* is not a

report selection but a map. As in the *Montana Water Right* Query application, these maps are linked to both topographic and orthophoto backdrops.



Map & Reports: The following figure is a report showing water right diversions along Willow Creek in the Bitterroot Valley, Ravalli County Montana. Note that the map format and map tools are identical to those generated with the *Montana DNRC Water Right Query* tool.

Again, reports are available that provide indexes to the selected data. These reports are accessible through the "hyper link" links in the legend below the map. As with the *Montana Water Right* query tool, there are four report formats. You will find a link below these report formats that allows a "download of the selected data. Topographic and aerial photo backdrops and print quality maps are available. Along the far right edge of the map format you will again find the "identify" function, a useful help tool that will further define the displayed features. It is this tool that will tell you if a displayed water right location represents one or more water rights and what those rights are. To get additional instruction on how to use this feature you should reference the on-line Thematic Mapper help site. In addition, to the far right of the legend is a column with indication of if metadata is available for a given dataset. Please refer to the "yes" link for metadata about montana's water rights; http://nris.state.mt.us/mapper/metadata/layer_215.html .

It is important for the user to remember that what this tool provides access data differently; in this case, water rights identified are all of those within a half-mile the defined geographic feature – Willow Creek. So the markers identified in the Willow Creek map above are all of the water diversions within a half-mile. These are primarily water rights from Willow Creek;

however, some of the diversions near the mouth are actually from the Bitterroot River. This type of detail will be available in the attribute tables which the user can download, either from the reports or by downloading the shapefile.

Conclusion Welcome to the *Montana Interactive Application* web site. We encourage the use all of its features, including water rights data. New users are also encouraged take a few minutes to examine the help features and tools provided on the site. Finally, this site should not be considered the either final or most current water rights data set. Water users and citizens are encouraged to contact any DNRC Water Resources Office for additional information and guidance.

Helpful Web Sites:
Montana State Library – Interactive Applications http://nris.state.mt.us/interactive.html
Montana Natural Resources Information System Homepage http://nris.state.mt.us/
Montana Department of Natural Resources and Conservation (DNRC)
Homepage http://www.dnrc.state.mt.us/
Water Resources Division: http://www.dnrc.state.mt.us/wrd/home.htm

State of Montana - Department of Natural Resources and Conservation
Water Resources Division
48 N. Last Chance Gulch
P.O. Box 201601
Helena, Montana 59620-1601

Phone: 406-444-6610
Fax: 406-444-0533

APPENDIX

WATER RIGHT DATA EXPLANATIONS

Dated material. This report contains DNRC recorded ACTIVE water rights up to the data currency date, and may not provide other water right information that may be useful for your research needs. New applications, updated ownership, revocations of permits, withdrawals of water rights or corrections constantly occur. This report is provided as a public service by the State of Montana. User assumes total responsibility for verification.

Rate and Volume
Water Right ID Code: e.g. 41I -00000001-00 GROUND WATER CERTIFICATE
Drainage Basin Codes e.g. the "41I" above
Type of Water Right Codes: e.g. the "'GROUND WATER CERTIFICATE" above
Type or Historic Water Right Codes
Purpose (use) Codes
Irrigation Method Codes
Diversion Method Codes
County Codes

Flow Rate & Volume

flow rate units c=cfs, cubic feet per second
g=gpm, gallons per minute

volume is acre feet per year

WATER RIGHT ID

An alpha numeric code represents the water right id. The code categorizes a type of water record. An
entire water right consists of a drainage basin code, an eight digit water right number, and/or a
two digit extended id number and the water right type.
An example of a water right id is "41I -00000001-00 GROUND WATER CERTIFICATE" where

- **basin code = 41I**
- **water right number = 00000001**
- **extended id = 00**
- **water right type = "GROUND WATER CERTIFICATE"**

DRAINAGE BASINS

Columbia River Basin

KOOTENAI
76B Yaak River

76C Fisher River
76D Kootenai River
FLATHEAD
76I Middle Fork Flathead River
76J South Fork Flathead River
76K Swan River
76L Flathead River below Flathead Lk.
76LJ Flathead River to and incl. Flathead Lake
UPPER CLARK FORK
76E Rock Creek trib of Clark Fork Rv.
76F Blackfoot River
76G Clark Fork above Blackfoot Rv.
76GJ Flint Creek
76H Bitterroot River
LOWER CLARK FORK
76M Clark Fork between Blackfoot and Flathead Rv.
76N Clark Fork below Flathead Lk.

Missouri River Basin

UPPER MISSOURI TRIBUTARIES	***MISSOURI-MUSSELSHELL***
41A Red Rock River	40A Musselshell River above Roundup
41B Beaverhead River	40B Flatwillow Creek incl. Box Elder Creek
41C Ruby River	40C Musselshell River below Roundup
41D Big Hole River	41R Arrow Creek
41E Boulder River trib of Jefferson Rv.	41S Judith River
41F Madison River	41T Missouri River from Marias to and incl. Bullwhacker Cr.
41G Jefferson River	40EJ Missouri River between Bullwhacker and Musselshell Rv.
41H Gallatin River	***MILK***
MISSOURI-SMITH	40F Milk River above Fresno Resrv.
41I Missouri River above Holter Dam	40G Sage Creek
41J Smith River	40H Big Sandy Creek
41QJ Missouri River from Holter Dam to Sun Rv.	40I Peoples Creek
41U Dearborn River	40J Milk River between Fresno Rsrv. and Whitewater Cr.
MISSOURI-SUN-MARIAS	40K Whitewater Creek
41K Sun River	40L Frenchman Creek
41L Cut Bank River	40M Beaver Creek trib Milk Rv.

41M Two Medicine River	40N Rock Creek trib Milk Rv.
41N Willow Creek	40O Milk River below Whitewater & incl. Porcupine Cr.
41O Teton River	***MISSOURI-FORT PECK***
41P Marias River	40D Dry Creek
41Q Missouri River from Sun to Marias Rv.	40E Missouri River between Musselshell Rv. and Ft. Peck Dam
----------	40P Redwater River
----------	40Q Poplar River
----------	40R Big Muddy Creek
----------	40S Missouri River below Fort Peck Dam
----------	40T St. Mary River

Yellowstone River Basin (and Little Missouri Drainage)

UPPER YELLOWSTONE
43A Shields River
43B Yellowstone River above & incl. Bridger Cr.
43BJ Boulder River trib of Yellowstone Rv.
43BV Sweet Grass Creek
43C Stillwater River
43D Clarks Fork Yellowstone River
43QJ Yellowstone River from Bridger Ck. to Clarks Fork Yellowstone Rv.
MIDDLE YELLOWSTONE
43E Pryor Creek
43N Shoshone River
43O Little Bighorn River
43P Bighorn River below Greybull Rv.
43Q Yellowstone River between Clarks Fork Yellowstone & Big Horn Rv.
42A Rosebud Creek
42B Tongue River above & incl. Hanging Woman Creek
42C Tongue River below Hanging Woman Cr.
42KJ YellowstoneRiver between Bighorn and Tongue Rv.
LOWER YELLOWSTONE
42I Little Powder River
42J Powder River below Clear Cr.
42K Yellowstone River between Tongue and Powder Rv.
42L O'Fallon Creek
42M Yellowstone River below Powder Rv.
LITTLE MISSOURI
39E Box Elder Creek

39F Little Missouri River above Little Beaver Cr.
39FJ Little Beaver Creek
39G Beaver Creek trib Little Missouri Rv.
39H Little Missouri below Little Beaver Cr.
38H Belle Fourche River above Cheyenne Rv.

WATER RIGHT TYPE

(former identification letter code indicated at end of line)

62-73 GROUNDWATER	**pre 1973 - acknowledgments for groundwater (1962-73 - over 100 gpm) -K-**
CONSERVATION DISTRICT WATER RGT	**post 1973 - completed portion of water reservation -R-**
CONVERTED TERMINATES	**post 1973 - terminated new appropriation file -T-**
EXEMPT RIGHT	**pre 1973 - exempt existing right for stock and domestic uses -E-**
GROUND WATER CERTIFICATE	**post 1973 - certificate for groundwater use -C-**
INTERSTATE TRANSFER CLAIMS	pre 1973 - noted inter state transfer of water -X-
IRRIGATION DISTRICTS	**pre 1973 - irrigation district filed claim -Z-**
POWDER RIVER DECLARATION	**pre 1973 - Powder River Basin declaration of existing water right -D-**
PROVISIONAL PERMIT	**post 1973 - provisional permit for water (surface or large groundwater) -P-**
RESERVED CLAIM	**pre 1973 - federal reserve claim -U-**
STATEMENT OF CLAIM	**pre 1973 - claim of existing water right -A-B- OR -W-**
STOCKWATER PERMIT	**post 1973 - approved provisional permit for stockwater -P-**
TEMPORARY PROVISIONAL PERMIT	**post 1973 - temporary permit -Q-**
WATER RESERVATION WATER RIGHT	**post 1973 - approved water reservation -M-**

TYPE OF HISTORIC RIGHT

u=use right, f=filed right, d=decreed right, r=reserved right

PURPOSE OF USE

Groups Shown in Map Legend

domestic
irrigation
lawn and garden
municipal
stock
other
- **agricultural spraying**
- **dewatering**
- **commercial**
- **erosion control**
- **flow through fish pond**
- **fire protection**
- **fishery**
- **fish and wildlife**
- **fish raceways**

flood control
geothermal heating
geothermal
industrial
institutional
mining
multiple domestic
navigation
observation and testing
oil well flooding
pollution abatement
power generation
power generation, nonconsumptive
recreation
sediment control
sale
storage
wildlife
waterfowl
wildlife/waterfowl
other purpose
unknown

METHOD OF IRRIGATION CODES

border dike
contour ditch
controlled subirrigation
ditch system
flood
furrow
furrow/flood
multiple methods
natural overflow
natural subirrigation
other
parallel ditch
spreader dike
sprinkler
sprinkler/flood
sprinkler/furrow
sprinkler/furrow/flood

METHOD OF DIVERSION CODES

bucket
dam

dam/pit
developed spring
dike
direct from source
ditch
ditch/gravity flow
diversion dam
drain ditch
electric pump
flowing
fueled pump
geothermal heating
gravity flow/direct
hand pump
headgate
headgate w/ditch or pipeline/flood and dike
infiltration gallery
instream
multiple
multiple
natural overflow
other
other diversion
pipeline
pit
pit/dam
pump
pump/flood and dike
pump/gravity flow
pump/headgate w/ditch or pipeline
pump/headgate w/ditch or pipeline/flood and dike
spring box
subirrigation
sump
undeveloped spring
unknown
well
windmill

COUNTIES IN MONTANA

BE Beaverhead	GV Golden Valley	PR Powder River
BH Big Horn	HI Hill	PW Powell
BL Blaine	JB Judith Basin	RA Ravalli
BR Broadwater	JE Jefferson	RI Richland
CA Carbon	LA Lake	RO Roosevelt
CH Choteau	LC Lewis & Clark	RS Rosebud
CR Carter	LI Liberty	SA Sanders

CS Cascade	LN Lincoln	SB Silver Bow
CU Custer	MA Madison	SG Sweet Grass
DA Daniels	MC McCone	SH Sheridan
DL Deer Lodge	ME Meagher	ST Stillwater
DW Dawson	MI Mineral	TE Teton
FA Fallon	MS Missoula	TO Toole
FE Fergus	MU Musselshell	TR Treasure
FL Flathead	PA Park	VA Valley
GA Gallatin	PE Petroleum	WH Wheatland
GF Garfield	PH Phillips	WI Wibaux
GL Glacier	PI Prairie	YE Yellowstone
GR Granite	PO Pondera	YP Yellowstone Park